

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION FOR U.S. LETTERS PATENT

Title:

2 PIECE MINI TUBE

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2 PIECE MINI TUBE

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is a national stage filing of PCT/EP2003/010457 filed September 19, 2003 claiming priority to DE 102 46 086.8 filed October 2, 2002.

TECHNICAL FIELD

[0002] The invention relates to a container, consisting of a container body and a lid connected to it.

BACKGROUND OF THE INVENTION

[0003] The state of the art describes a wide variety of containers of various forms, such as bottles, tubes, tubular containers, etc., in which the dispensing aperture is closed with a lid, especially a snap-fit lid. A fundamental distinction is made here between containers in which the container body and lid are separate from one another in the non-closed state, i.e. the lid no longer has any connection with the container body after opening, and those containers, in which there is still a connection between the lid and the container body in the opened state.

[0004] In the latter case, this connection can be made in a variety of ways. One preferred possibility, especially in the case of tubular containers, is to form the container body and lid integrally. These integral embodiments are usually manufactured by injection moulding. In this case, it is inevitable that the container body and lid are made from the same material.

[0005] One example of the container type mentioned can be found in DE 44 12 907 C1. A further example and, in particular, a more advanced manufacturing process is disclosed in WO 99/00238.

[0006] In order to ensure that the lid is hinged to the container body in such a way that it is possible to open and close the container frequently with no problems, i.e. that the plastic film hinge between the container body and lid is, on the one hand, sufficiently stable, and, on the other hand, sufficiently flexible (a "living hinge" as it is called), particular measures are necessary in the choice of material and in the manufacturing process, such as those described in WO 99/00238. It is, for example, customary to use certain additives in order to control the properties of the plastics material in such a way as to ensure that the hinge is sufficiently flexible.

It is also meaningful, as likewise described in WO 99/00238, to engage the lid with the container body before the plastic has finally cured.

[0007] If, in order to avoid these disadvantages, one reverts to the two-part design of the container body and lid, there is, on the other hand, the disadvantage that, once the container has been opened, the lid might fall off or be lost. If, despite having the lid and container body formed separately, a connection between the container body and lid is still intended even when the container is in the open condition, the latter is in most cases too unstable or aesthetically unacceptable in the prior-art embodiments.

[0008] The object of the invention is therefore to create a container of the generic type in which the connection between the container body and lid is more stable and reliable than what was known in the state of the art.

BRIEF SUMMARY OF THE INVENTION

[0009] This object is achieved, in accordance with the invention, by means of a container of the generic type, comprising a container body and a lid connected to it, wherein the container body and lid are manufactured separately, the container body having a recess or projection in or on its outer wall adjacent to its dispensing aperture, and the lid having a connecting land extending outwards from its peripheral rim, with a projection or recess provided at the end of the land distal from the lid, which can be brought into engagement with the recess or the projection on the container body.

[0010] In one preferred embodiment of the invention, it is provided that the end of the connecting land distal from the lid is designed such that, in the assembled state, said end lies substantially flat against the outer wall of the container body.

[0011] In a preferred embodiment of the invention, it is provided that the container body is formed substantially cylindrical and the lid substantially round.

[0012] The invention further provides that a hinged connection is provided in the region of the connecting land of the lid.

[0013] In a preferred embodiment of the invention, the container body and/or the lid consist substantially completely of plastics material, the container body preferably consisting of a different plastics material from the lid.

[0014] The container body and/or lid are preferably produced by injection moulding in this case.

[0015] The container of the invention unites the advantages of the known two-part container type with those of the known one-part type. The invention provides a container with a stably hinged lid, which remains firmly connected to the container body even when the container is in the opened state. On the other hand, it is possible, by manufacturing the container body and lid separately, to choose different materials for these two components. In this way, it is only necessary, for example, for the plastics material for the lid to contain additives which make it possible to achieve enhanced flexibility in the region of the hinged connection, e.g. a film hinge, such as certain plasticisers, whereas these additives are not necessary for the container body, which reduces the costs significantly. Furthermore, with separate production, it is also possible to design the container body and lid differently in color, surface structure, etc. In addition, it is conceivable to provide differently designed lids for the same kind of container body, without it being necessary to change the mould for the production of the container body.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] In the following example, one preferred embodiment of the invention will now be described in more detail with reference to the attached drawing in which:

[0017] Fig. 1 shows a perspective view of an embodiment of a container body for the container of the invention;

[0018] Fig. 2 shows a lid suitable for the container body of Fig. 1; and

[0019] Fig. 3 is a cross-section through the lid of Fig. 2.

DETAILED DESCRIPTION OF THE INVENTION

[0020] Fig. 1 shows a container body 10 with a substantially cylindrical basic shape. At one end, the container body 10 has a dispensing aperture 12, whereas the other end 13

of the container body 10 is closed. Adjacent to the dispensing aperture 12, a peripheral flange 15 is formed on the outer wall 14 of the container body 10, which has a recess 16 in one portion.

[0021] Fig. 2 and Fig. 3 show a lid 20 suitable for connecting with the container body according to Fig. 1. The lid 20 is designed substantially round and has an internal diameter which corresponds approximately to the external diameter of the container body 10, so that it is possible to seal the dispensing aperture 12 of the container body 10 simply by pressing on the lid 20. At its peripheral rim 21, the lid 20 has a tab 22 (which can be of any design), which serves in particular to open the container. Opposite the tab 22, at the peripheral rim 21 of the lid 20, there is provided a connecting land 24 extending outwards from said rim, the land having the material with a thinner portion (in a position substantially central and transverse to its radial extent), said thinner portion having the function of a film hinge 25. At the end 26 of the connecting land 24 distal from the lid, there is provided a projection 27, which runs substantially perpendicularly to the connecting land 24. The end 26, or the projection 27, are slightly curved in the transverse direction, namely corresponding to the curvature of the outer wall 14 of the container body 10. At the outer ends of the projection 27, engaging lugs 28 can preferably be provided.

[0022] After the container body 10 and lid 20 have been manufactured separately, they can be assembled into the complete container at any suitable time by inserting the projection 27 into the recess 16 and anchoring it there by means of the engaging lugs 28. In this way, a firm connection is created between the container body and the lid. The lid 20 can be swivelled about the film hinge 25 in such a way that a secure closure of the dispensing aperture 12 in the container body 10 is achieved. In this context, the peripheral flange 15 can serve as a stop for the lid 20.

[0023] As an alternative, it is of course also possible to have a recess provided at the end of the connecting land 24, which is guided via a projection disposed on the outer wall of the container body in a similar position to the recess 16 in Fig. 1 and engages there in a similar manner.

[0024] It goes without saying that the invention is not limited to cylindrical container bodies and round lids. On the contrary: any cross-section is conceivable, as long as it is only ensured that the lid is designed such that it is possible to seal the dispensing aperture of the container body.

[0025] The invention will now be further explained with reference to the following example.

Example

[0026] The material used both for the container body and for the lid is polypropylene, which can be processed in the range from 200 to 300° C. In order to facilitate the formation of the film hinge on the connecting land of the lid, the polypropylene for the lid can also have a conventional commercially available plasticiser added to it.

[0027] The container body, which is cylindrical in the case of this example, and the rounded lid, the dimensions of which have been adapted to the body shape, are produced in two separate moulds, with a plurality of each part being contained in a mould. A conventional injection moulding process is used for production.

[0028] After the injection process, the parts are ejected mechanically onto a belt by means of a scraper. The two parts are delivered separately to an assembly station, where they are aligned and subjected to a handling process in which the two parts are brought together. After that, the closure is performed mechanically. The injection moulding step and subsequent processing can be carried out completely independently of one another.

[0029] The features of the invention disclosed in the above description, and in the claims and drawings can be essential for implementing the invention in its various embodiments both individually and in any combination.